

# ON BECOMING: THE GRAMMAR OF CAUSALITY IN PITJANTJATJARA AND ENGLISH

DAVID ROSE

Nyapari

## *1. Introduction*

Pitjantjatjara is a dialect of the language group of Australia's vast western desert. The Pitjantjatjara people have occupied their present lands for an unmeasured, but certainly immense depth of time. Their traditional cultural and linguistic links with other Aboriginal Australian peoples extend from Arnhem Land in northern Australia, to Adelaide in the south, and west to the Indian Ocean. Most Pitjantjatjara adults are multi-lingual in several Australian languages, as well as varieties of spoken English. Since the 1930s, they have been dealing with European colonisation, in the form of pastoralism on the fringes of their lands, Protestant missions and government "welfare" settlements under "assimilation" policies, and more recently, policies of "self-management." Since the 1930s they have had a vernacular literacy curriculum instituted by mission and state schools in their communities, which they have now largely rejected in favour of priority for English literacy to ensure that future generations have the linguistic tools to negotiate successfully with the colonising European society.<sup>1</sup> For such a program to be successful in the long term, comparative analyses of the forms in which Pitjantjatjara and English make meaning is a useful task. While considerable linguistic work has been done on Pitjantjatjara and its neighbouring dialects at the levels of phonetics, morphology, vocabulary and syntactic structure, there has been very little systematic study of the similarities and differences between it and English at the semantic stratum. How does Pitjantjatjara construe experience, enact social relations and construct text through its grammar, what are the ideational, interpersonal and textual systems of meaning realised in the grammar, and how do they compare with the semantic and grammatical systems of modern English? These questions have not only pedagogic implications, but are also crucial to an understanding of the theories of material, social and semiotic reality that underlie these apparently remote cultural traditions. The extent to

which their grammatical resources correspond may indicate common semiotic ground shared by both cultures, while their points of divergence may show exactly how and where their distinctive socio-economic contexts are realised in differing potentials for meaning.

The following investigation arose out of a concern with similarities and differences between the ways that Pitjantjatjara and English construe relations between events in past, present and future time, in particular differences between the two languages, and the cultural systems in which they have evolved, in their construals of **causality**, or the origins of phenomena—how processes, entities and properties come into being in the manifest world of our senses. Some aspects of the Pitjantjatjara theory of origins—the “Dreaming”—are widely known in the European world. The Pitjantjatjara word for the Dreaming is *tjukurpa*, whose more general meaning approximates that of “discourse” or “text” in English. Characteristically, this Pitjantjatjara name collapses the distinction which tends to be emphasised in European traditions between social discourse and the reality which it represents.

The following extract is from a Pitjantjatjara myth about the origin of fire. At this point in the narrative, the villainous *Kipara* (plains turkey, or bustard) is carrying original fire across the land in his head feathers. A group of men are following him, trying unsuccessfully to snatch it away. This sequence is expressed in 1a-c. then in d-e, this sequence ‘**becomes**’ *tjilka*, which is the long ceremonial journey undertaken by young initiates, up to and culminating in their initiation into adulthood.

- 1a ka ya palu-nya putu mantji-ra tjulya-ra  
and they-Agent it-Medium unable getting-imperf snatching-imperf  
*and they could not get (the fire), though snatching at it,*
- b tjulya-ra wanara tjulya-ra wana-ra  
snatching following snatching following-imperf  
*snatching, following, snatching, following*
- c wati kutjupa tjuta-ngku tjulya-ningi putu  
man other many-Agent were snatching-past: durative unable  
*none of the men were able to snatch it*
- d ka Tjilka-ri-ngu  
and Tjilka-inceptive-past  
*and (this journey) became Tjilka*
- e Tjilka-rara alatjitu kati-ngu  
Tjilka-group complete bring-past  
*Tjilka groups were actually brought into being (by the travellers)*

In this account, a journey of ancestral beings literally **became** a contemporary social institution, *tjilka*. This is realised in 1d by the inceptive relational

process of 'becoming manifest.' The process of its 'manifesting' is elaborated in 1e, as having been **brought into being** by the *agency* of the actors in the ancestral journey. In other words, the relationship between the ancestral journey and the modern ceremonial journeys is one of 'becoming manifest,' manifestation that is engendered by the agency of the Dreaming ancestors and their actions. For the Pitjantjatjara, this manifesting relation between past events and present phenomena is a potent and satisfactory explanation of the origin of *tjilka*.

The theory of origins realised in such texts appears to be radically different from the dominant contemporary European construal of causal relations between events, embodied in the empirical methods of observation and reasoning developed in the modern physical and social sciences over the past five or six centuries. The empirical version of causality is an indispensable component of the discourses of the sciences, history, social sciences and administration in contemporary industrial societies. Partly on the basis of this perceived difference, the colonising European culture typically relegates *tjukurpa* texts to the status of children's stories, or as artefacts of exotic cultures in the contexts of anthropology, linguistics or popular literature. However similar construals of the origins of phenomena are pervasive in canonical texts from all cultures, particularly sacred texts; the Bible for instance offers many such examples of inceptive causality—phenomena coming into being as a result of a sequence of events, often involving human or extra-human agency. The scientific and historical construal of causality grew out of such discursive traditions which continue to coexist with it and within it, at the levels of semantic concepts, in the grammatical resources which realise them, and in the contextual fields in which they function. While the explanations of origins given by the discourses of science, history and *tjukurpa* appear to be incompatible, a comparative study of the linguistic resources through which they are realised points to continuities between them, with distinctions arising from recombinations of these resources in differing cultural contexts.

Taken as a whole, the corpus of Dreaming texts of an Aboriginal culture (all of which are interlinked across the Australian continent via the Dreaming tracks of the ancestors) constitute a coherent theory of social, material and semiotic reality. The following description of Hopi philosophy from Whorf (1941), offers a powerful summation of such a theory, remarkably similar to that of the Pitjantjatjara:

The Hopi metaphysics... imposes upon the world two grand cosmic forms, which as approximation in terminology we may call manifested and manifesting (or unmanifest) or, again, objective and subjective. The objective or manifested comprises all that is,

or has been, accessible to the senses, the historical universe, in fact, with no attempt to distinguish between the past and the present, but excluding everything that we would call future. The subjective or manifesting comprises all that we would call future, but not merely this; it includes equally and indistinguishably all that we call mental—everything that appears or exists in the mind, or as the Hopi would prefer to call it, the heart, not only the heart of man, but the heart of animals, plants and things, and behind and within all the forms and appearances of nature in the heart of nature, and by implication and extension which has been felt by more than one anthropologist, yet would hardly ever be spoken of by a Hopi himself, so charged is the idea with religious and magical awesomeness, in the very heart of the Cosmos itself. The subjective realm (subjective from our point of view, but intensely real and quivering with life, power, and potency for the Hopi) embraces not only our future, much of which the Hopi regard as more or less predestined in essence if not in exact form, but also in mentality, intellection, and emotion, the essence and typical form of which is the striving of purposeful desire, intelligent in character, towards manifestation... It is the realm of expectancy, of desire and purpose, of vitalising life, of efficient causes, of thought thinking itself out from an inner realm (the Hopian heart) into manifestation.<sup>2</sup>

The discussion of causality is organised as follows. Section 2 begins by outlining core grammatical resources for expressing causality that are typically deployed in spoken English discourse, followed by a discussion of elaborated grammatical resources that have evolved more recently in written English. Section 3 presents a broad comparison of resources for expressing causality in English and Pitjantjatjara at the rank of clause complex, while section 4 gives a more detailed analysis of clause complex relations in Pitjantjatjara. This is followed by comparisons between these resources and clause rank systems for expressing causality in Pitjantjatjara, in section 5 as circumstance, and in section 6 as agency and process. Each stage of the discussion includes comparison with English and suggestions for interpreting the semogenesis of these resources. The concluding section 7 summarises the correspondences and divergences between the two languages in this semantic domain and suggests an interpretation for their semogenesis and the theories of reality they realise.

## *2. The English grammar of cause: a synopsis*

### *2.1 Causal relations and interdependency between clauses*

Both commonsense and philosophical notions of causality in English, are embodied in logical relations of Cause and Effect between two or more events. The range of temporal and causal relations in English include the following categories:<sup>3</sup>

Category	Meaning
time: succession	event P then event Q
cause: reason	cause P so effect Q
cause: purpose	action P so that effect Q
condition	if event P then effect Q
concession	if P then contrary to expectation Q

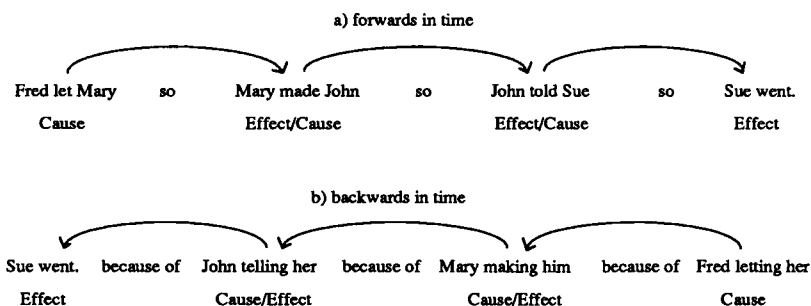
The concept of time unfolding is inherent in each of these **logico-semantic relations**, but it is qualified in various ways to express a semantic relation of *expectancy* between two or more events. In addition, each of these meanings can be realised in a range of possible grammatical structures; these structures are exemplified below for **purpose** and **reason**. Firstly, logical relations may be either paratactic (*i.e.* each clause has equal status) or hypotactic (a secondary  $\beta$  clause is dependent on the primary  $\alpha$  clause). The following are examples of **paratactic** relations.

<i>2a: purpose</i>	<i>2b: reason</i>
1 John told Sue	1 John told Sue
2 so that she would go.	2 so she went.

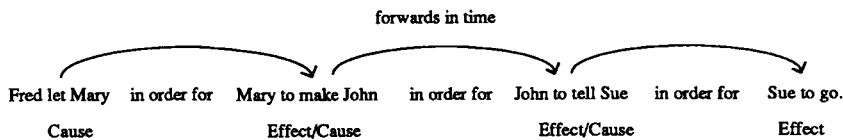
Where the relation is **hypotactic**, the dependent  $\beta$  clause may be either finite or non-finite. Examples below give non-finite  $\beta$  processes.<sup>4</sup>

<i>3a purpose</i>	<i>3b reason</i>
$\alpha$ John told Sue	$\alpha$ Sue went
$\beta$ in order for her to go.	$\beta$ because of John telling her

Both reason and purpose may be selected recursively, again and again, within an English clause complex. From a semantic perspective, *reason* may represent chains of causal relations between events either backwards or forwards in time, *i.e.* from first to final cause or vice versa.



*Purpose* on the other hand, may only be selected recursively forwards in time.



Our examples of purpose and paratactic reason construe causal relations between events forwards in time as it unfolds in our experience, from first event to final event. The example of hypotactic reason, on the other hand, reconstructs causal relations into the past, from final to first cause. The sequence of events being represented is still Cause ^ Effect, but the discursive sequence of **reasoning** is reversed.

Reasoning backwards and forwards in time involves an interaction between grammatical resources in the ideational metafunction of English (*i.e.* resources for representing reality) and the textual metafunction (resources for constructing text). Ideational resources include the systems of logico-semantic relations and interdependency (parataxis & hypotaxis); textual resources include the systems of conjunction and Theme. The textual structure of clause complexes 3a & 3b are the **textually unmarked**, or typical variants of the hypotactic structure, in which the  $\alpha$  clause is the Theme of the clause complex, and the  $\beta$  the News. By reversing the order of the hypotactic clause complex, the causal relation can be given greater textual prominence, making the causal relation itself **marked Theme** in the clause complex:

<i>4a purpose</i>	<i>4b reason</i>
$\beta$ In order for Sue to go	$\beta$ Because of John telling her
$\alpha$ John told her	$\alpha$ Sue went

Finally, cause can be expressed as a cohesive conjunction between two clause complexes (*i.e.* sentences in written discourse):<sup>5</sup>

<i>5a (forwards in time)</i>	<i>b (backwards in time)</i>
John told Sue to go.	Sue went.
Therefore she went.	Since John told her to go.

## 2.2 Cause as CIRCUMSTANTIATION

In addition to logical relations between clauses or cohesive conjunctions between clause complexes, causality may also be expressed as a circumstantial element within a clause, realised as a prepositional phrase (*i.e.* a nominal group preceded by a preposition which relates it to another clause element). In English, causal circumstances include **reason**, **purpose** and **behalf**:

<i>6a reason</i>	<i>6b purpose</i>	<i>6c behalf</i>
He died of starvation	She's gone for lunch	He did it for the sake of our friendship

Circumstances are a kind of “minor clause”; they are one step away from non-finite clauses. “Thus the internal structure of *across the lake* is like that of *crossing the lake*, with a non-finite verb as Predicator” (Halliday 1985:189); in the prepositional phrase, the preposition functions as a “mini-process.” Note that in the examples of causal circumstances above, each nominal group is a metaphor for a process, *i.e.* *starvation*—starving, *lunch* - eating (in the middle of the day), *our friendship*—being friends. In each case, the causal preposition functions to relate the circumstantial element to the major process as Cause and Effect.

### 2.3 Cause & MODALITY in English

Martin (1992) interprets causal/conditional relations in English along interpersonal lines, as *modulating* and *modalising* relations of temporal succession between events; that is, they incorporate the interpersonal resources of modality into the logical system of interdependency. While the relation of **manner** simply states the semantic environment which *enables* the unfolding of the main process (the means or quality of its unfolding), **reason** and **purpose** *obligate* one event to follow another as Cause/Action ^ Effect. In addition to obligation, **purpose** indicates the speaker’s *inclination* that Effect will follow an Action, and **condition** indicates the *probability* that Effect will follow Cause.

With manner relations, the relationship between events is modulated through ‘ability’: *we won by training hard* means that the Cause (preparing well) *enabled* the Effect (winning). With other consequential relations the connection between events is modulated through ‘obligation’: *we won because we trained hard* means that the Cause *determined* the Effect. This is the ‘natural logic’ of the distinction between sufficient and necessary conditions. (Martin 1992: 193)

	MODULATION	MODALISATION (Effect irrealis )
TIME (when, while)	-	-
MANNER (thus, by)	ability	-
REASON (so, because)	obligation	-
CONDITION (then, if)	obligation	probability
PURPOSE (so that)	obligation & inclination	probability

Martin’s perspective explicitly and plausibly links the logical system of interdependency between clauses to the interpersonal system of modality. Interpersonal resources such as modality have evolved to facilitate the continual exchange of material and symbolic commodities that brings our social relations into being. In consequence interpersonal semantic and grammatical resources reflect the nature of social interaction as **exchange**. In the semantic

domain of causality, the two functions of language as representation and exchange are combined: whereas degrees of obligation and inclination typically grade a speaker's intention that s/he or the listener will perform an action, they may also be applied to grade causal relations between events that involve neither speaker nor listener.

#### *2.4 Elaborated resources for expressing causality in modern English: cause as process and participant*

The resources described above for representing causality in spoken English have become highly elaborated over the past five to six centuries, particularly through the written discourses of theology, philosophy, science, history and social administration. These discourses, and the grammatical resources through which they are realised as text, were initially borrowed from written classical Greek and Latin, gradually incorporated into modern English systems, and elaborated as the Renaissance and Enlightenment projects developed.<sup>6</sup>

The central semantic resource for elaborating these grammatical resources is **grammatical metaphor**.<sup>7</sup> Grammatical metaphors, within the ideational metafunction, include among others:

a) **nominalising processes**, which are congruently<sup>8</sup> realised as verbal groups in English ('a happens') to function as participants in a clause, ('happening a...').

b) **verbalising logical relations**, congruently realised as conjunctions between clauses ('a happens so x happens'), to function as a process in a relational clause ('happening a causes happening x').

c) **nominalising logical relations**, to function as a participant in a relational clause ('happening a is the cause of happening x').<sup>9</sup>

The evolution of these resources, for expressing cause in modern English, has been described by Halliday from several perspectives. There have been two parallel developments:

1) for representing '**external cause**'—which construes relations of Cause and Effect between processes of the natural world (*e.g.* 'happening a **leads to/ causes** happening x').

2) for representing '**internal cause**'—which metaphorically expresses acts of *reasoning* about relations of Cause and Effect (*e.g.* 'happening a **suggests/ proves** happening x').

These historical tendencies are summarised in the following chart (after Halliday 1988).



	EXTERNAL CAUSE	STRUCTURAL REALISATION	INTERNAL CAUSE
1	a happens; so x happens	paratactic: sequence in time Cause ^ conjunction ^ Effect	a happens; so we see that x happens
2	because a happens, x happens	hypotactic: causal relation as marked Theme	we see that because a happens, x happens
3	that a happens causes x to happen	relational clause: embedded processes x cause as process	that a happens proves x to happen
4	happening a causes happening x	relational clause: nominalised processes x cause as process	happening a proves happening x
5	happening a is the cause of happening x	relational clause: nominalised cause as participant	happening a is the proof of happening x

In examples 1 and 2 above, the expectancy relation is expressed as an interdependency relation between two clauses. But in 3 and 4, the expectancy relation is expressed as a relation of **agency** between two nominalised processes that are functioning as participants within a relational clause—one engendering the other.

*happening a*      *causes*      *happening x*  
 Token/Agent      'engenders'      Value/Medium

Congruently, agency is a clause rank relation between two concrete participants, mediated by the process, *e.g.*:

John      rolled      the ball  
 Agent      Process      Medium

Agency embodies the semantic concept of causality at clause rank, *i.e.*:

John      caused      the ball      to roll  
 Agent      Pro-      Medium      -cess

By expressing causal relations metaphorically, as a process relating two nominalisations, the power of the expectancy relation may be doubled (or squared): it is realised *lexically* by a causal verb, *causes*, *proves*, *engenders* *etc.*, and *grammatically* as agency—*Token engenders Value*. The semantic power of this expectancy relation may then be transferred to a causal noun *the cause*, *the result*, as in example 5 in the table above, to mean the same (logical) thing. The wide choice of lexical items available through this resource enables writers of English to modulate and modalise their assertions of causality from the incontestable *engenders* to the tentative *suggests*, with a wealth of intermediate shades and types of meaning.

The function of these metaphorical expressions of cause is to construct empirical explanations and arguments as written text. They have evolved in

European languages, as the emerging discourses of science *etc.* have required them to realise new ways of explaining the world. In turn, new explanations of natural and social phenomena have become possible by means of such elaborated grammatical resources. Elaborated resources for representing causal relations in modern English are illustrated in the following analysis of an extract from Durkheim (1912: 433-4). Realisations of logical relations are highlighted in the text, including clause complexes ( $\alpha$ ,  $\beta$ ), conjunctions (normal font), relational processes and participants (**bold face**). Embedded clauses are indicated by double brackets [[ ]].

- 1           The nature of the concept, [[thus defined]], **bespeaks its origin**.  
 2 $\beta$    If       it is common to all  
 2 $\alpha$            it is the work of the community.  
 3 $\beta$    Since   it **bears the mark** of no particular mind,  
 3 $\alpha$            it is clear [[that it **was elaborated by** a unique intelligence, [[where all others meet each other, and after a fashion come to nourish themselves]] ]].  
 4 $\beta$    If       it has more stability than sensations or images,  
 4 $\alpha$            it is **because** [[the collective representations are more stable than the individual ones]];  
 5       for  
 5 $\beta$    while   an individual is conscious even of the slight changes [[that take place in his environment ]],  
 5 $\alpha$            only events of a greater gravity **can succeed in affecting** the mental status of a society...  
 6       Also,  
 6 $\beta$    as       we have already said,  
 6 $\alpha$            the concepts [[with which we ordinarily think]] are those of our vocabulary.  
 7       Now   it is unquestionable [[that language, and **consequently** the system of concepts [[which it translates]], is **the product** of a collective elaboration]].  
 8           What it expresses is **the manner** [[in which society as a whole represents the facts of experience]].  
 9       The ideas [[which correspond to the diverse elements of language ]] are  
       thus   collective representations.

Ideational metaphors of cause include:

	cause as process	as participant or circumstance
manner		the manner
external cause	was elaborated by 'was caused by' succeed in affecting 'cause to change'	its origin 'the processes it was caused by' (is) the product of '(is) the effect of' <b>because</b> (of the fact [[that] the collective rep...])
internal cause	(its nature) <b>bespeaks</b> (its origin) 'we can see its nature was caused by its origin'	(it <b>bears</b> ) the mark of 'we can see it was caused by'

All these textual, logical and metaphorical resources interact to construct the discourse of social science. At the time of writing, Durkheim was leading

the development of this new scientific field, which involved 1) inducing generalisable explanations of observed social processes, and 2) building taxonomies of technical names for these social processes. Durkheim's text is an example of such an explanation: his purpose is twofold: to explain a social semiotic process, and to give it a technical name. The semogenic process to be explained is "the origin of the concept," and it is named as "collective representations."

However the explanation is not simply stated, it is negotiated with the reader, step by step as follows. In the Theme sentence, the process *bespeaks* metaphorically expresses internal cause, or 'reasoning.' Because it is a verb of 'saying,' it literally means that *the nature of the concept, thus defined*, has "told" us the answer to the question of *its origin*, and implies that the following text will further elaborate this answer. This is a cohesive device between the preceding and following passages, but it also has the effect of locating the source of the explanation in the text itself, and the academic field it is a part of, rather than with the individual author. Each example adds evidence, but it does so with conditions and reasons that precede each statement, pre-empting the reader's possible objections, at once appearing to probabilise the explanation, but making it more difficult to argue with. Finally the cohesive conjunction *thus* links the technical term back to the explanation. It is ambiguously both text reference 'as I have said' and causal conjunction 'therefore;' this doubles the cohesive links between the explanation and the technical term.

The explanation is projected by the field of social science that Durkheim is creating, the evidence for it is accumulated, argued and explained, and the technical term is its logical consequence. The combination of elaborate resources for expressing cause, that Durkheim weaves together in this text, is a very powerful means of both explanation and persuasion, interweaving interpersonal and logical meanings; the effect is to both educate and position the reader within the discipline as a student, not of the master, but of the field itself.

The cohesive, clause complex and clause rank resources described in sections 2.1 and 2.2 have become elaborated as the written mode of English has evolved. But the potential for their elaboration existed first in the spoken mode, and there is a dialectic relation between the written and spoken, as each evolves in the context of each other. Thus the elaborated resources are now part of both modes, depending 1) on the register (*e.g.* whether the field is gossip, narrative, history, science, *etc.*), and 2) on the degree of access to the written mode by different segments of the English speech community (*e.g.* level of formal education). When we speak of 'reasoning' about the world, we are not simply talking about the way the world works, but about the construction of

text. Logical arguments in written discourses do not simply lead in a causal sequence, from first to final causes, or vice versa, they **accumulate information** as evidence is gathered to prove or disprove hypotheses. They use the textual and ideational resources outlined above, to introduce information as News, and redeploy it as Given information at each textual level of clause, sentence, paragraph and text.<sup>10</sup> This construction of reasoning is not a universal feature of all languages, or of all registers within one language; it is a particular type of reasoning that arises at historical moments in the evolution of certain cultures and languages. The fundamental semiotic condition for its semogenesis is the evolution of a written mode.

### *3. Interdependency and Logico-Semantic Relations in Pitjantjatjara and English*

Causal relations in English are one domain within more general categories of logical meaning that are also realised in the grammar of Pitjantjatjara. Associated with the system of interdependency between clauses, Halliday (1985:196) identifies two general types of logico-semantic relation between processes: projection and expansion.

1) **Projection**: *the secondary clause is projected through the primary clause as (a) a locution or (b) an idea.*

2) **Expansion**: *the secondary clause expands the primary clause, by (a) elaborating it, (b) extending it or (c) enhancing it.*

The following glosses are from Halliday (1985:197), exemplified with clause complexes from Pitjantjatjara texts. But first a note on morphology: Pitjantjatjara tends to employ affixes on words to realise meanings that in English are typically realised by independent items such as prepositions and conjunctions. There is a very small system of conjunctions including three items realising logical relations of extension—*ka* and *munu* “and” and *palu* “but,” and one cohesive conjunction realising enhancement *palulanguru* “from there/then/that.” Other types of relations are realised by intonation or by suffixes. In the examples below, affixes realising logical relations are in **bold face**.

#### **Projection**

In both English and Pitjantjatjara, both locutions and ideas can be projected.

**Locution**: *one clause is projected through another, which presents it as a locution, a construction of wording.*

With quoted locutions in Pitjantjatjara, the projection is realised by intonation, distinguishing the quoted speech from the projecting clause.

## 7 "quoted locution"

- |   |                                    |                |               |                        |
|---|------------------------------------|----------------|---------------|------------------------|
| 1 | nganana                            | manager        | watjal-pai    |                        |
|   | we                                 | manager        | tell-habitual |                        |
|   | <i>we tell the manager</i>         |                |               |                        |
| 2 | "DAA                               | ngatji-la      | ka-ni         | money uwa"             |
|   | "DAA" <sup>11</sup>                | beg-imperative | and-me        | money give-imperative" |
|   | <i>"Beg DAA to give me money."</i> |                |               |                        |

**Idea:** *one clause is projected through another, which presents it as an idea, a construction of meaning.*

With reported ideas, the projecting relation is realised by the suffix on a perfective non-finite process in the projected  $\beta$  clause, e.g. *anku-ntjaku* "to go."

## 8 'reported idea'

- |          |                       |                      |
|----------|-----------------------|----------------------|
| $\alpha$ | ngayulu               | kuli-ningi           |
|          | I                     | think-past durative  |
|          | <i>I was thinking</i> |                      |
| $\beta$  | nyuntu                | <b>anku-ntjaku</b>   |
|          | you                   | <b>go-perfective</b> |
|          | <i>you were to go</i> |                      |

**Expansion**

The semantic concepts of time, space and causality are components of the logico-semantic system of **expansion**. As with projection, logical meanings at the level of generality of elaboration, extension and enhancement are realised in both English and Pitjantjatjara.

**Elaboration:** *one clause expands another by elaborating on it (or some portion of it); restating it in other words, specifying in greater detail, commenting or exemplifying.*

Elaboration is realised by intonation; the elaborating clause typically has the same tone contour as the primary clause, as in English.

## 9 restatement

- |   |  |          |             |              |
|---|--|----------|-------------|--------------|
| 1 | nyara                                      | tjana-ya | walytja-nku | kanyi-ni     |
|   | yonder                                     | they     | self-Agent  | hold-present |
|   | <i>those people run it themselves</i>      |          |             |              |
| 2 | walytja-nku                                | alatjitu |             |              |
|   | self-agent                                 | complete |             |              |
|   | <i>(they run it) entirely on their own</i> |          |             |              |

**Extension:** *one clause expands another by extending beyond it: adding some new element, giving an exception to it, or offering an alternative.*

Extension is realised by the conjunctions *ka*, *munu* and *palu*; *ka* and *munu* both mean "and," but distinguish whether the Actor in the secondary clause is

the same *munu* or switch *ka* from the Actor of the primary clause. *Palu* is typically translatable as “but.”

10 addition

- |   |  |                                     |  |   |
|---|--|-------------------------------------|--|---|
| 1 | <b>Watarr-la</b><br>Watarr-Location<br><i>at Watarr he arrived</i>                           | <b>wir-kati-ngu</b><br>arrived-past |  |   |
| 2 | <b>munu</b><br><b>and:same</b><br><i>and he cast out firesticks to other places</i>          | <b>wani-ngu</b><br>threw-past       | <b>tili</b><br>firestick                     | <b>ngura kutjupa-ngka</b><br>place other-location |
| 3 | <b>ka</b><br><b>and:switch</b><br><i>and Watarr is called fire-burning, or place-of-fire</i> | <b>Watarrnga</b><br>Watarr          | <b>waru-kampa-ntja,</b><br>fire-burn-nominal | <b>waru-piti</b><br>fire-place (rockhole)         |

**Enhancement:** *one clause expands another by embellishing around it: qualifying it with some circumstantial feature of time, place, cause or condition.*

Enhancement is realised by the suffix on the non-finite process in the enhancing clause, e.g. *palya-ra* “making, fixing” (imperfective), or again *anku-ntjaku* “to go” (perfective).

11 succession in time

- |   |  |   |  |
|---|--|---|--|
| β | <b>ngayulu</b><br>I<br><i>upon fixing the car</i>                                | <b>motorcar</b><br>motorcar               | <b>palya-ra</b><br>fixing-imperfective |
| α | <b>Angatja-lakutu</b><br>Angatja-Location:towards<br><i>I'm going to Angatja</i> | <b>ma-pitja-nyi</b><br>away-going-present |  |

12 condition

- |   |   |                        |   |
|---|---|------------------------|---|
| β | <b>mai-n</b><br>food-you<br><i>if eating that food</i>                        | <b>palatja</b><br>that | <b>ngalku-ra-mpa</b><br>eating-imperfective-condition |
| α | <b>pikatjara-ri-ngku</b><br>sick-inceptive-future<br><i>you will get sick</i> |                        |   |

At this general level of delicacy the systems of logico-semantic relations between clauses are identical for both English and Pitjantjatjara. In other words the grammatical potentials for realising the semantic categories of mental and verbal projection, elaboration, extension and enhancement are shared between both languages. What differs markedly is the form of their realisation as lexicogrammatical structures: the wordings in each language are mutually unintelligible, although the type of logico-semantic relations they

realise are common between the languages, and are therefore directly translatable.

To this point we can map the common semantic potential of both languages in a system network as follows:

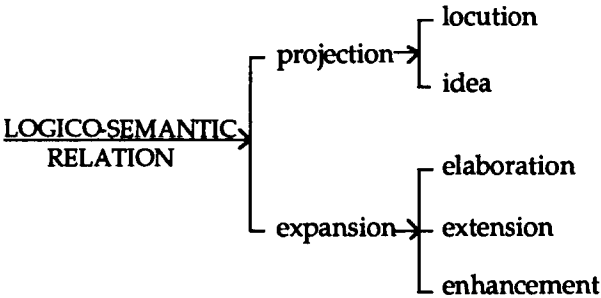


Fig 1. Systems of logico-semantic relations in both English & Pitjantjatjara

In English, all the logico-semantic relations in the network above may co-select with either parataxis or hypotaxis. Furthermore there are more delicate distinctions for relations of projection and expansion, described by Halliday.<sup>12</sup> The co-selections of parataxis/hypotaxis with projection/expansion give the following system network for English:

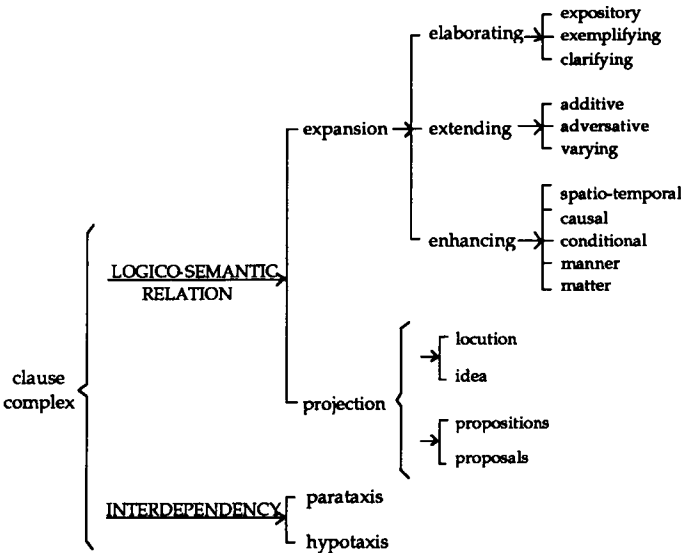


Fig. 2. Clause complex relations in English

In Pitjantjatjara, projection may be paratactic if the projected clause is *quoted* in speech, i.e. representing the **wording** of the speech act; for example, *He said "I'm going."* Projection may also be hypotactic if the projected clause is *reported* speech, thought, feeling or expectation, i.e. representing the **meaning**; for example, *He desired to go.*

But Pitjantjatjara does not offer a choice of parataxis or hypotaxis for relations of **expansion**. In the Pitjantjatjara system of logico-semantic relations, the primary choice is between parataxis and hypotaxis, which then determines the choice of elaboration, extension, enhancement, quoting or reporting as follows.

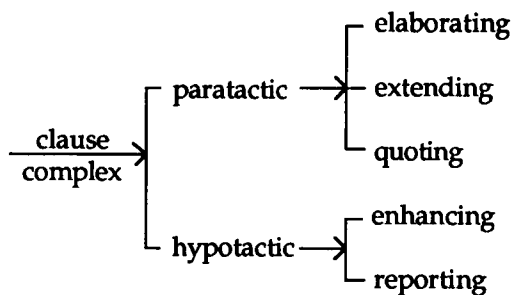


Fig. 3. Interdependency/logico-semantic relations as a single system in Pitjantjatjara

interdependency relation	logico-semantic relation	example
paratactic	elaborating	1 <i>those people run it themselves</i> 2 <i>(they run it) entirely on their own</i>
	extending	1 <i>at Watarr he arrived</i> 2 <i>and he cast out firesticks to other places</i>
	quoting	1 <i>we tell the manager</i> 2 <i>"Beg DAA and give me money".</i>
hypotactic	enhancing	$\beta$ <i>upon fixing the car</i> $\alpha$ <i>I'm going to Angatja</i>
	reporting	$\alpha$ <i>I thought</i> $\beta$ <i>you were to go</i>

This is an example of divergence between Pitjantjatjara and English at a fairly general level of delicacy. Cause is a type of enhancing logico-semantic relation, and in Pitjantjatjara, enhancing and reporting relations are both hypotactic and are very closely related grammatically and semantically. We will therefore give a more systematic description of hypotactic interdependency relations in Pitjantjatjara, leading to a system network to compare with that given above for logical relations in English clause complexes.



#### 4. Hypotactic clause complexes in Pitjantjatjara

##### 4.1 Temporal deixis of processes in Pitjantjatjara

In hypotactic clause complexes in Pitjantjatjara the dependent  $\beta$  event is always represented by a non-finite process, while the  $\alpha$  event is typically finite, indicating mood and tense. Before beginning the discussion of hypotactic relations, it is necessary to look briefly at how time is expressed in finite and non-finite processes at the rank of word. This is important because, at the rank of clause complex, the temporal deixis of the  $\alpha$  and  $\beta$  processes helps to distinguish different types of logical relations.

The relevant distinctions are:

a) finite processes:

between  $\alpha$  events that occur before or during the time of speaking, *i.e.* **past** and **present** tense, or  $\alpha$  events that occur after the time of speaking, *i.e.* **future** tense and **imperatives**.

b) non-finite processes:

between  $\beta$  events that occur before or during the  $\alpha$  event, *i.e.* **imperfectives**, or after the event, *i.e.* **perfectives**.

There is thus a distinction between **realis** temporal deixis (before or during) and **irrealis** (after), in both finite and non-finite processes, that becomes relevant at the rank of clause complex.

In Pitjantjatjara there are five primary tenses to choose from, **future**, **present**, **past:punctiliar** or **past:durative**, and **habitual**. In contrast to the elaborate secondary tense system in modern English, there is no secondary tense system in Pitjantjatjara. The following table sets out tense, mood and aspect potentials in finite and non-finite processes, along with the temporal deixis inherent in each selection (examples with verb stem *nyina-* 'sit'):

temporal deixis	finite process: mood						non-finite: aspect	
	indicative: tense					imper- ative	perfective	imperfective
	habitual	past: durative	past: punctiliar	present	future			
Irrealis					✓	✓	✓	
Realis	✓	✓	✓	✓				✓
Examples	<i>nyina-pai</i> 'sits'	<i>nyina-ngi</i> 'was sitting'	<i>nyina-ngu</i> 'sat'	<i>nyina-ni</i> 'is sitting'	<i>nyina-ku</i> 'will sit'	<i>nyina-ma</i> 'siti'	<i>nyina-ntjaku</i> 'to sit'	<i>nyina-ra</i> 'sitting'

##### 4.2 Non-finite processes: temporal deixis and participant identification

There are four non-finite forms of each verb which indicate:

- whether its temporal deixis is **perfective** or **imperfective**,
- which participant is Actor in the dependent  $\beta$  clause.

These logical and textual functions are realised in the suffix of each non-finite verb form as follows:

time reference	participant reference	
	SAME Actor	SWITCH Actor
realis (imperfective)	-la, -ra <i>nyina-ra</i>	-nyangka <i>nyina-nyangka</i>
irrealis (perfective)	-ntikitja <i>nyina-ntikitja</i>	-ntjaku <i>nyina-ntjaku</i>

#### 4.3 Irrealis hypotactic clause complexes (perfective $\beta$ processes): reported projections and purpose

In hypotactic clause complexes, perfective non-finite  $\beta$  processes realise the logical relations of reported projections and purpose. While each of these relations are realised by the *same* perfective suffix on the  $\beta$  process (-*ntjaku* or -*ntjikitja*), they are distinguished *lexically*. **Ideas** have a mental process as  $\alpha$ , **locutions** have a verbal process as  $\alpha$ , and **purposes** have a material or relational process as  $\alpha$ .

In the following example,  $13\alpha$  **projects**  $13\beta$  as an **idea**, while  $13\gamma$  **enhances**  $13\beta$  as **purpose**, and both types of relations are realised by the perfective suffix.

##### 13 reported idea & purpose

$\alpha$      uti     nganampa     AP-ingkanguru     executive     tjuta-ngku  
          clearly   our     AP-loc:away     executive     many-Agent  
          kuli-nma  
          think-imperative  
          clearly our AP executives should consider

$\beta$      school-a     nganampa     tawarra     palya-ntjikitja  
          school     our     tawarr     make-perfect:same  
          to set up our own Tawarra school

$\gamma$      panya     nintiringku-ntjaku  
          endoph     to learn-perfect:switch  
          in order for (our young men) to learn

(Note the endophoric reference item *panya* in Thematic position in  $13\gamma$ . This can be used to textually mark the purpose relation.)

Thinking about doing something, and acting with the purpose of something else happening are distinguished lexically—the **idea** is projected by a mental process  $13\alpha$ , while a material process  $13\gamma$  enhances  $13\beta$  as **purpose**; but they are not distinguished grammatically—the logical relation is realised by the same perfective suffix on the non-finite  $\beta$  process. In addition there is a distinction between projected propositions and proposals.

**Locutions**

a) Propositions: where the  $\alpha$  process is **indicative**, the projection represents a reported statement that an event **did** or **would** occur (*i.e.* whether the  $\beta$  event occurs before, during or after the reported statement is not distinguished).

*14 reported statement*

$\alpha$	radio-nka ya radio-location <i>they said on the radio</i>	tjakaltju-nu they told-past		
$\beta$	anangu people <i>he people to be coming across</i>	tjuta plural	panya endoph	wati-pitja-ntjaku across-move-perfect:switch

b) Proposals: where the  $\alpha$  process is **imperative**, the projection represents a reported command that another person **would** perform an act (*i.e.* the  $\beta$  event must occur after the reported command).

*15 reported command*

$\alpha$	watja-nu told-past <i>I commanded</i>	na I
$\beta$	anku-ntjaku go-perfect:switch <i>him/her to go</i>	

**Ideas:**

a) propositions: where the  $\alpha$  process is one of “thinking” or “perceiving,” the projection represents somebody’s **belief** or **expectation** that an event did or would occur.

*16 reported thought*

$\alpha$	nganana we <i>we believed</i>	kuli-ningi were thinking-past durative
$\beta$	nyura you lost- <i>you to have become lost</i>	kawa-rinku-ntjaku inceptive-perfect:switch

b) proposals: where the  $\alpha$  process is one of “feeling,” the projection represents somebody’s **inclination** that an event would occur, or **obligation** on another to perform an act. The general term for this system is **desideration**.

*17 reported feeling (desideration)*

$\alpha$	muku-ri-nganyi desire-incept-present <i>we want</i>	la we
----------	---	----------

β      anku-ntjikitja  
          go-perfect:same  
          to go

With **purpose:intention** the β event is the intended Effect of a conscious Actor's intentional action.

18 *purpose:intention (conscious Actor)*  
 α      puli      la      tati-nu  
          hill      we      climbed-past  
          we climbed the hill

β      kanyila      pawu-ntjikitja  
          wallaby      shoot-perfect:same  
          in order to shoot euros (hill kangaroos)

With **purpose:expectation** it is the expected Effect of a process involving a non-conscious Actor.

19 *purpose:expectation (non-conscious Actor)*  
 β      mina      puyi-ntjikitja  
          water      raining-perfect:same  
          in order to rain

α      ila-ri-nganyi  
          near-inceptive-present  
          water is approaching

#### 4.4 Hypotactic interdependency, obligation & inclination and the semogenesis of cause

As with reason and purpose in English, obligation and inclination are combined with interdependency in Pitjantjatjara hypotactic clause complexes in the projecting relation of desideration and in the enhancing relations of purpose:intention and expectation. These combinations of interpersonal and logical meanings involve processes of abstraction, from the here & now, you & me of the speech situation, out to the there & then, it & them, of represented reality.

In the first step in abstraction, an interpersonal exchange (language-in-action) is *represented* as a projected proposal (language-as-reflection). In Pitjantjatjara, obligation is realised congruently by imperative mood directed towards 2nd person(s), e.g. *ara* "Go!". Imperative mood realises a command—a direct interpersonal relation between speaker and listener, *i.e.* the speaker is placing an **obligation** on the listener to perform an act. This interpersonal relation of obligation can then be represented as a **verbal projection** of a proposal, as in example 18:

18 *reported command*

α	watja-nu	na
	told-past	I
	<i>I commanded</i>	
β	anku-ntjaku	
	go-perfect:switch	
	<i>him/her to go</i>	

This abstraction ideationalises an interpersonal meaning; it reconstrues an interpersonal exchange as a logico-semantic relation between events (“saying ^ doing”), and it incorporates the relation of obligation in the interdependency relation between the two events.

Similarly, inclination in Pitjantjatjara is also realised by imperative mood, but directed towards 1st person(s) (“I” or “we”), *e.g.* *ara la* “Let’s go!”. This interpersonal relation can also be represented as a **mental projection** of a proposal (“feeling ^ doing”), as in example 16:

16 *reported feeling*

α	muku-ri-nganyi	la
	desire-incept-present	we
	<i>we want</i>	
β	anku-ntjikitja	
	go-perfect:same	
	<i>to go</i>	

In a further step in abstraction, the semantic potential opened up by combining obligation and inclination with projection, can be applied to logical relations between material processes. With **purpose:intention**, a conscious Actor **intends** an Effect to occur as a result of an action (“acting ^ intended effect”), as in example 19:

19 *purpose:intention (conscious Actor)*

α	puli	la	tati-nu
	hill	we	climbed-past
	<i>we climbed the hill</i>		
β	kanyila	pawu-ntjikitja	
	wallaby	shoot-perfect:same	
	<i>in order to shoot euros (hill wallabies)</i>		

With **purpose:expectation**, obligation and inclination can be applied to a relation between material processes that do not involve the intention of conscious Actors. The speaker **expects** that an Effect will follow an observed event (“observed event ^ expected effect”), as in example 20:

20 *purpose:expectation (non-conscious Actor)*

β      mina    puyi-ntjikitja  
          water   raining-perfect:same  
          in order to rain

α      ila-ri-nganyi  
          near-inceptive-present  
          water is approaching

The interpersonal semantic similarity between projected proposals and purpose is realised in their grammatical similarity in Pitjantjatjara hypotactic clause complexes. In English it is most apparent in the similarities between projected proposals:ideas and 'causatives' in verbal group complexes.

"It is in this area that expansion and projection come to meet and overlap. Causing something to be done means that it is done with 'external agency' as a circumstantial feature. Wanting something to be done means that it is envisaged, or projected, but may or may not happen: its status is that of a metaphenomenon, not a phenomenon. But the line between the two is narrow" (Halliday 1985:267).

Note however that there is even greater semantic similarity between projected desire and purpose, both "may or may not happen." In English, desideration, intention and expectation are distinct potentials within the domain of projected proposals:ideas, using a wider range of projecting verbs than is available in Pitjantjatjara. Furthermore projection:intention and expectation are 'causative' projections. These categories reflect those of projected desideration, purpose:intention and expectation in Pitjantjatjara.

*Proposal:idea*

desideration	want/wish/desire to do would like/prefer to do would rather do
intention	mean/plan/intend to do decide/resolve/make up mind to do
expectation	hope/expect/aspire to do

*Modulation:cause*

purpose	try to do/doing
reason	happen to do remember/forget to do

*after Halliday 1985:259-69*

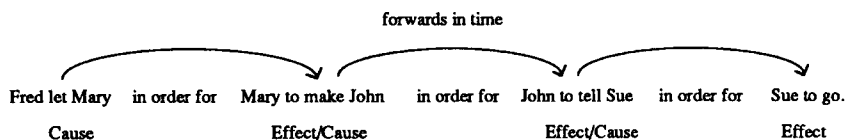
Whereas the β process in Pitjantjatjara is *always* a perfective non-finite, in English it is *typically* a perfective non-finite; the meaning potential of the English system has expanded by incorporating a further (non-typical) poten-

tial for structural realisation. In another step in the evolution of English, realisations of desideration and intention in verbal group complexes have become part of the tense system: "will do" (desideration) has become the simple future tense form; "is going to do" (intention) has become the secondary future tense form.

This shift in function illustrates the fact that the combination of obligation and inclination with interdependency has an *irrealis* temporal component. A command implies that the service *will be* carried out *after* the verbal act ("command ^ action"). Similarly a projected command or intention implies that the action *will follow* the verbal or mental process ("saying/feeling ^ doing"), purpose implies that an intended event will follow an action ("action ^ intended event"), and expectation implies that an expected event will follow an observed event ("observed event ^ expected event").

type of relation	sequence		
exchange (proposal)	proposing	-->	action
projected proposal	represented proposal	-->	represented doing
intention	acting	-->	intended event
expectation	observed event	-->	expected event

As with purpose in English, hypotactic relations involving perfective non-finite processes in Pitjantjatjara may also be recursively selected, as in 13a-c above, but only forward in time from the finite event.



The hypotactic relations of projection and purpose can therefore be realised recursively, as succeeding each other into *irrealis* time away from the time of the primary  $\alpha$  event.

#### 4.5 *Realis hypotactic clause complexes (imperfective $\beta$ processes): emergence and condition*

Imperfective non-finite processes participate in two general types of enhancing relations—**emergence** and **condition**. These enhancing relations indicate the type of logico-semantic environment in which the  $\alpha$  event unfolds. They are distinguished by the temporal deixis of the  $\alpha$  process: in **emergence** the  $\alpha$  finite process is typically *realis* (*i.e.* past or present tense); in **condition** the  $\alpha$  process is typically *irrealis* (future or imperative).

## Emergence

In the emergence relation, the non-finite  $\beta$  event creates a semantic environment in which the finite  $\alpha$  event unfolds. In other words, the  $\alpha$  process “emerges” from the semantic environment represented by the  $\beta$  process. This semantic environment may be either **time** or **manner**. The time relation may be either successive or simultaneous; there is no grammatical distinction between the two kinds of time, but the difference may be inferred from the context.

### 21 succession in time

$\beta$       ka                      kunyu                      anku-la  
            switch                  quote                      go-imperfect:same  
            (after) going along...

$\alpha$       Watarr-la      wirka-nu  
            Watarr-loc      arrived-past  
            (he)arrived at Watarr

### 21 simultaneous time

$\beta$       walytja              tjuta      nyaku-la  
            relation              many      see-imperfect:same  
            (while) seeing all my relations

$\alpha$       ngayulu      pukula-ri-ngu  
            I                      happy-incept-past  
            I became happy

Both clause complexes, 21 and 22, have the same grammatical structure: an imperfective non-finite  $\beta$  followed by a realis finite  $\alpha$ . However 21 is more likely to be interpreted as a **succession** of events, while 22 most likely represents **simultaneous** events. Note however that both 21 and 22 could be interpreted as **means** in the context of dialogue, as an exchange relation of question and answer, *e.g.*:

21Q      paluru              yaaltji yaaltji              Watarr-la              wirka-nu?  
            s/he                      how                      Watarr-location      arrive-past  
            how (by what means) did s/he arrive at Watarra?

A      - anku-la              anku-la  
            - going                      going-imperfect:same  
            - (by means of) going and going

22Q      yaaltji yaaltji      nyuntu      pukula-ri-ngu?  
            how                      you              happy-incept-past  
            how/why did you become happy?

A      - walytja              tjuta              nyaku-la  
            - relation              many              see-imperfect:same  
            - from/by seeing all my relations



However, as a clause complex relation (*i.e.* a logical relation rather than an exchange relation as above, **means** is typically distinguished by:

a) the order of  $\alpha$  and  $\beta$  clauses. In the means relation, the clause complex structure is typically finite  $\alpha$   $\wedge$  non-finite  $\beta$ ; the finite Effect is the Theme of the clause complex, the speaker's point of departure, while the non-finite  $\beta$  Cause is foregrounded as the New information the speaker presents to the listener.

b) as with purpose, the expectancy relation between Effect and Cause may be further foregrounded by the endophoric reference item *panya*.

23 means

$\alpha$  ngayulu pukula-ri-ngu  
I happy-incept-past  
*I became happy*

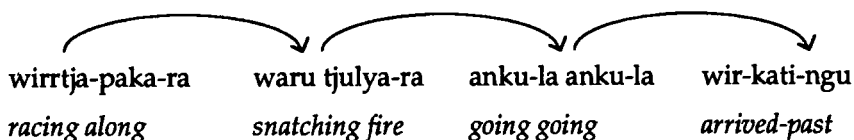
$\beta$  panya walytja tjuta nyaku-la  
endoph relation many see-imperfect:same  
*by seeing all my relations*

24 means

$\alpha$  pikatjara ngari-nyi  
sick lie-present  
*she is lying ill*

$\beta$  panya mina kura tjiki-ra  
endoph water bad drink-imperfect:same  
*by drinking bad water*

Unlike English, there is no distinct clause complex relation of cause:reason in Pitjantjatjara. In English, means and reason may be distinguished by different conjunctions, *e.g.* "by" (means) or "because of" (reason). However in Pitjantjatjara, there is no distinction in the grammar between "sufficient conditions" and "necessary conditions," for one event to follow another. Furthermore, the means relation cannot be recursively selected. Time may be recursive, but only forwards in time, towards the finite  $\alpha$  event, *e.g.*:



However, because **means** is realised by the clause complex structure, finite  $\alpha$   $\wedge$  non-finite  $\beta$ , it cannot represent a recursive sequence of Effects and Causes, as can **reason** in English. In order to represent a chain of Causes and Effects, it is necessary to use a sequence of clause complexes, linked by the cohesive

conjunction *palulanguru*. This item may be interpreted as temporal, spatial or text reference, *i.e.* 'after that event,' 'from that place,' or 'following that message (thus/therefore).' But as with purpose and means the expectancy relation may be foregrounded with *panya*, to realise the meaning of cause:reason.

25 *cohesive conjunction*

1 $\alpha$  ngayu-ku motorcar katakati-ngu  
my car broke down-past  
*My car broke down,*

$\beta$  radiator boil-arinku-la  
radiator boiling-incept-imperfect-same  
*with the radiator boiling.*

2 **panya palula-nguru** na mala-ri-ngu  
endoph that-from I late-incept-past  
*From (because of) that I became late.*

Such a sequence of clause complexes may be repeated by extension *ka palulanguru*... "and from that..." but again only representing a sequence of events forwards in time. In practice such a sequence of clause complexes is most uncommon, and it is not possible to express a sequence of reasons backwards in time.

### Condition

Condition represents events that **may** occur **after** the time of speaking. It is realised by an imperfective non-finite  $\beta$  with an irrealis finite  $\alpha$ , future or imperative tense. The conditional relation may also be emphasised by the probability particle *-mpa*.

25 *future indicative as  $\alpha$*

$\beta$  mama-nya ngalya-pitja-nyangka-mpa  
father hither-coming-imperfect:switch-probability  
*if father comes here*

$\alpha$  ngayulu anku-ku  
I go-future  
*then I will go*

26 *imperative as  $\alpha$*

$\beta$  watja-nyangka-mpa  
tell-imperfect:switch-probability  
*if he tells you*

$\alpha$  money mantji-la  
money get-imperative  
*take the money*

The meaning of condition is essentially **probability**, the  $\beta$  clause modifies the  $\alpha$  clause in terms of the likelihood of its occurrence. In other words, the speaker is inserting a judgement about the probability of the temporal succession occurring. The logical meaning is that, conditional on the non-finite process become manifested, the irrealis finite event will do so. We can now represent this configuration of hypotactic clause complex types as a system network to compare with that for English above.

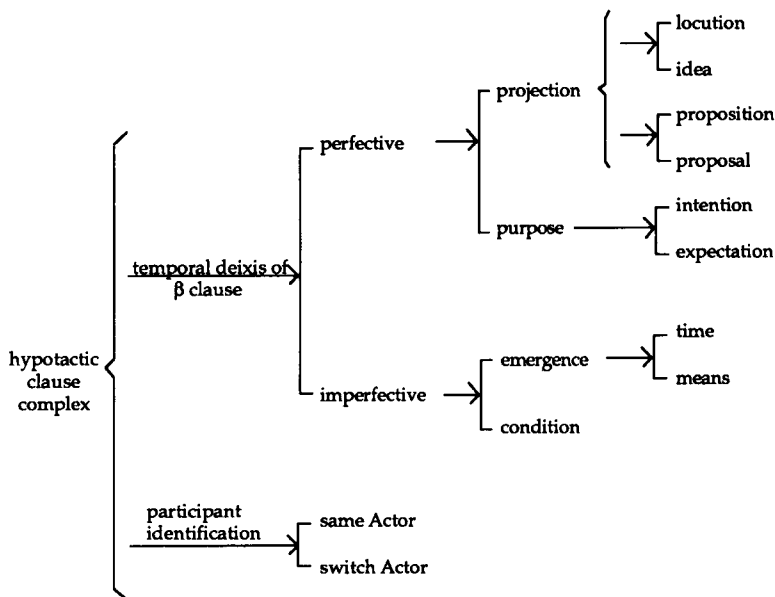


Fig 4: Hypotactic clause complex relations in Pitjantjatjara

The ideational resources of temporal deixis of the  $\alpha$  and  $\beta$  processes, and textual resources of Theme and Information are deployed to distinguish these hypotactic clause complex relations in Pitjantjatjara. As in English, *realis* temporal succession and *irrealis* causal relations may be recursively selected, realising sequences of intentions or expectations from a first to final event. But *realis* enhancing relations are not constructed as recursive sequences of Effect  $\wedge$  Cause—the grammar of Pitjantjatjara does not reconstruct the past as causal sequences backwards in time. The implications of this major difference for the theories of causality embodied in the grammar of Pitjantjatjara and English are discussed in the concluding section below.

## 5. Agency and time in relational clauses

In Pitjantjatjara, relational clauses may be verbless, e.g.:

## 27 identifying relational clause

a        ka        Watarr-nga    waru-kampa-ntja,    waru-piti  
           and    Watarr        fire-burn-nominal    fire-place  
           and Watarr (is) fire-burning, or place-of-fire.

b        waru-piti        Watarr-nga    Mount Lindesay  
           fire-place        Watarr        Mt Lindesay  
           place-of-fire (is) Watarr, or Mt Lindesay.

The relation may also be verbalised:

a) with a **verb of posture**, 'sitting,' 'standing' or 'lying,' or a **verb of possession** 'holding' or **possession:movement** 'bringing/taking.' These enable the relation to be temporalised with respect to tense, aspect and movement.

b) with an **inceptive** or **causative suffix** on a participant. These temporalise the relation as phased in time, (i.e. phase of 'manifestation'), as well as tense and aspect.

## 28 inceptive relational process 'becoming manifest'

ka        Tjilka-ri-ngu  
 and    Tjilka-inceptive-past  
 and (this) became Tjilka

## 29 possessive:movement relational process 'bring into being'

Tjilka-rara                    alatji-tu        kati-ngu  
 Tjilka-group-Medium    complete    bring-past  
 Tjilka group/s were actually brought into being (by an Agent)

## 30 causative relational process 'cause to become manifest'

wati-nku        ngayu-nya        ngulu-tji-ngu  
 man-Agent    me-Medium    fearful-causative-past  
 man me (caused to become) frightened

In 28 the participant *Tjilka* 'becomes manifest' in past time. In 29 *Tjilka* is literally 'brought into being,' adding a spatio-temporal dimension of *movement*, as well as *agency* to the manifesting. In 30 an Agent 'man' engenders the manifesting of an attribute 'fearful' in the Medium. Each has the sense of an unmanifest quality becoming manifested, either with or without being engendered by another participant; the most general meaning is the process of becoming.

In Pitjantjatjara texts, Agents who engender the manifestation are *always concrete participants*; nominalised processes do not become participants in other processes, as they do through ideational metaphor in modern English.

The nominal form of the verb *V-ntja*, typically functions to down-rank clauses as:

a) names for activities, *e.g.*:

- 31            malu-ku                      anku-ntja  
                 kangaroo-Intent            going-nominal  
                 'kangaroo hunting'

b) **modifiers in nominal groups**, *e.g.* defining relative clauses which function as qualifiers of participants as follows (embedded qualifier in double brackets [[ ]]):

- 32            wati    [[kuwari   pitja-ntja]]            tjuta   nyara   nyina-nyi  
                 man    now            coming-nominal    many   yonder   sitting-present  
                 the men [[who came just now]] are sitting over there

6. *Non-finite processes and circumstances: morphology, transitivity & spatio-temporal deixis*

Non-finite processes and circumstances have a lot in common in both Pitjantjatjara and English; both represent the semantic environment in which finite processes unfold, with which they are associated in some way.<sup>13</sup> And often the same semantic regions may be realised either as circumstances within a clause, or as non-finite dependent clauses. In English, circumstances are typically realised by prepositional phrases. In Pitjantjatjara, those circumstances associated with space and time are typically realised by a nominal group with a circumstantial suffix. The same set of morphemes that occur as suffixes on circumstances within the clause, also occur as suffixes on non-finite processes.

6.1 *Circumstances of existence and purposeful movement in time & space*

The suffixes on **realis** non-finite processes are derived from the same morphemes as suffixes on circumstances of **location in space**. Those on **irrealis** non-finite processes are derived from circumstances of **purpose and destination**.

**Purpose** has a similar meaning as it does in English, "the purpose for which an action takes place—the intention behind it" (Halliday 1985:140). **Destination** on the other hand has the meaning of 'intending to go somewhere,' and it is distinct from circumstances of Location:motion which are common to both English and Pitjantjatjara.

33 *purpose*

- paluru                      a-nanyi                      malu-kitja  
                 s/he                      go-present                      kangaroo-purpose  
                 he is going in order to (hunt) kangaroos

34 *destination*

nganana          ana-nyi          Angatj-ku  
 we-plural      go-present      Angatja-destination  
*we're heading for Angatja.*

The meanings of **purpose** and **destination** are more often realised as dependent non-finite clauses than as circumstances, as is purpose in English. Other locative circumstances are as follows:

35 location:motion:towards -*kutu* 'towards' (*destination -ku plus duration -tu*)  
 common nouns      proper nouns (-*kutu* + proper noun Location suffix -*la*)  
 ngura-kutu          Kunamata-lakutu  
*place-towards      Kunamata-towards*

36 location:motion:away from -*nguru* 'away from'  
 common nouns      proper nouns (-*nguru* + proper noun Location suffix -*la*)  
 ngura-nguru          Kunamata-languru  
*place-away from Kunamata-away from*

Note a morphological similarity between -*nguru* 'away from' and the word for 'place,' 'camp' or 'estate' *ngura*. This suffix may derive from a phonological reduction of *ngura* plus the duration morpheme -*tu*. The sense of -*languru* is of 'emerging from location -*la*, in a place *ngura*, continuously -*tu*.' This is semantically opposed to -*lakutu* 'moving towards -*ku*, a location -*la*, -continuously -*tu*.'

The similarity between the suffixes of non-finite processes and the circumstances mentioned above are set out in the following tables:

locative circumstance		imperfective non-finite process	
pronoun/ proper noun	- <i>la</i> ngayu- <i>la</i> / Angatja- <i>la</i> 'with me'/ 'at Angatja'	- <i>la</i> , - <i>ra</i> anku- <i>la</i> 'going'	same Actor
common noun	- <i>ngka</i> ngura- <i>ngka</i> 'in camp'	- <i>nyangka</i> anku- <i>nyanka</i> 'going'	switch Actor

intentive circumstance		perfective non-finite process	
purpose	- <i>kitja</i> malu- <i>kitja</i> 'to (hunt) kangaroos'	- <i>ntjikitja</i> anku- <i>ntjiktja</i> 'to go'	same Actor
destination	- <i>ku</i> Angatja- <i>ku</i> 'towards Angatja'	- <i>ntjaku</i> anku- <i>ntjaku</i> 'to go'	switch Actor

In each case the non-finite process is constructed from a nominal form of the verb plus the relevant circumstantial suffix. They are thus morphologically and semantically similar to circumstantial clause constituents, but retain their clausal rank since (as in English) "they can be expanded to include other

elements of clause structure” (Halliday 1985:190). Since it is the head clause they modify and not a participant (as in example 20 above), non-finite processes are not functioning as embedded nominalisations in nominal groups.<sup>14</sup> The morphology of non-finite processes is derived as follows:

	imperfective suffix	perfective suffix
SWITCH Actor	<i>-nyangka</i> = nominal <i>-ntja</i> -> <i>-nya</i> + location (common nouns) <i>-ngka</i>	<i>-ntjaku</i> = nominal <i>-ntja</i> + spatial intent <i>-ku</i>
SAME Actor	<i>-la</i> = location (proper nouns) <sup>15</sup>	<i>-ntjikitja</i> = nominal <i>-ntja</i> + purpose <i>-kitja</i> <sup>16</sup>

The morpheme *-ku* occurs throughout the grammar (e.g. circumstances of destination, purpose, future tense suffixes, perfective non-finite suffixes) and realises the general meaning of ‘centrifugal motion in time or space, away from the here and now, towards there and then.’ The morpheme *-ngka* has the general meaning of ‘existence in a spatial or temporal environment’ and may be derived from the same root as relational verbs of posture, *ngara-* ‘stand’ and *ngari-* ‘lie’, the noun for ‘place’ *ngura*, and the reference items, *nyanga* ‘near’ and *nyara* ‘yonder.’

## 6.2 Morphology, lexico-grammar and the semantics of time and space

Both enhancing circumstances and non-finite processes in Pitjantjatjara represent the **spatio-temporal environment** in which the main event unfolds: the place, time, means, condition or purpose of its manifesting.

*Realis* hypotactic clause complex relations of **emergence** and **condition** resemble circumstances of **location:movement:away**—they take the same suffixes, and they both represent a process ‘emerging from’ some environment—either a place, or another event. Similarly *irrealis* hypotactic relations of **projection** and **purpose** resemble circumstances of **destination, purpose** and **location:movement:towards**—they represent a process ‘unfolding towards’ a place or another event. In other words, the concepts of **space/time** embodied in the Pitjantjatjara system of circumstantiation are closely related to the concepts of **causality** embodied in the system of interdependency.

On the one hand is the semantic domain of **existence in time or place**, embodied not only in location circumstances, but in relational processes of posture, in *realis* non-finite aspect, past and present tense, and which is also the model for the logico-semantic relation of emergence. On the other hand is the domain of **movement in time and space**, either towards, or away from. These two semantic categories of ‘existence’ and ‘movement’ correspond to

two very general domains of experience in a nomadic hunter-gatherer economy—stillness in camp *nyinanyi*, and purposeful movement across the land *ananyi*.<sup>17</sup>

These two general domains of experience are also embodied in the temporal distinction between relational and material process types that may be shared by all languages. In English this is brought out in the co-selection of tense and process type, whereby material processes take present-in-present as unmarked present tense (*i.e.* unfolding through time), whereas relational (and mental) processes take simple present as unmarked present tense (*i.e.* persistent through time). In Pitjantjatjara and many other languages, this temporal persistence of relational processes is reflected in the fact that the relation need not be realised by a verb at all.

Finally, the same semantic domains also emerge in the morphology of agency at clause rank, differentiating Mediums (engaged in a process) and Agents (engendering a process). The Medium suffixes for proper nouns, *-nya* and *-nga* are related to locative *-nka* morphemes, suggesting **persistence in time or place**. The Agent suffixes *-lu*, *-tu* for proper nouns, and *-nku*, *-ntju* for common nouns appear to be a combination of the locative *-la*, *-nka*, plus intensive *-ku* and durative *-tu* morphemes, suggesting **purposive action emerging from existence in time or place**.

These semantic and grammatical categories can be expressed as a paradigm as follows. This representation brings out the spatio-temporal deixis underlying each clause and clause complex system in the grammar.

grammatical system	spatio-temporal deixis				
	existence		movement		
	persistence in time (thing)	location in place/time	from place/ time	towards place/time	persistence in time (process)
TRANSITIVITY	Medium	Range	Agent	-	Process
CIRCUM-STANTIATION	instrument	location: place/time	location: movement: away	spatial intent, purpose, location: movement: towards	extent (realised as verbal group)
TENSE, PHASE & ASPECT	-	past, present, imperfective	inceptive	future, imperative, perfective	durative
INTER-DEPENDENCY	-	-	emergence, condition	projection, purpose	-

Each of these semantic domains and grammatical realisations occur both in Pitjantjatjara, and in the core of the grammatical potential of English. The major differences arises in the semantic domain of cause:reason. In both Pitjantjatjara and English, causal relations between phenomena are conceived as either a) 'unfolding towards' time/place (irrealis), or b) as 'emerging from'



time/place (realis). Both of these relations construe a temporal sequence, and 'unfolding towards' may be both obligatory and recursive forwards in time. However, modern English adds a further spatio-temporal domain, which is the mirror image of purposeful movement towards, which we might label 'causative movement away from.' In this case the relation is not an *irrealis* one of purpose, but rather an obligatory enhancing relation between *realis* events. Like purpose, it is a causal, potentially recursive relation, but its potential reversibility goes beyond the temporal domain of 'emergence from time/place', creating a new category to the left of the paradigm. In other words, the semantic domain of 'cause:reason' in modern English, elaborates the recursive, causative meaning of purpose as a mirror image in time; it is a further abstraction from the subjective experience of unfolding time, agency and intention which the metaphor of purpose represents.

The semantic potential opened up by temporal deixis that can point either forwards or backwards in time is reflected in a number of grammatical developments in the evolution of modern English. A striking example is in English's extremely elaborate system of secondary tense, where expressions such as *couldn't have been going to be being eaten* become possible within a verbal group, and in combination with temporal adjuncts, expressions such as *she's been going to have known already by tonight for a while now*.<sup>18</sup> These expressions 'zig-zag' backwards and forwards in time, making possible combinations of temporal, modal and causative meanings that are very difficult to express in Pitjantjatjara.

### 7. *Semogenesis, divergence and continuity*

A number of conclusions and implications can be drawn from the comparative data I have presented here. The most general concerns issues of similarity and difference between the two languages at the levels of semantic concepts, the forms of their grammatical realisations, and the processes of semogenesis that produce/d them. Reading of the data from any position shows both similarities and differences, but what is most striking when considering such geographically, historically and culturally remote languages, is the degree of correspondence between them, semantically and grammatically, particularly at the higher ranks of clause and clause complex. From the common ground of shared potentials for meaning, it becomes possible to systematically distinguish domains of difference, much of which is explicable in terms of historical developments. It then becomes possible to compare the theories of causality embodied in the grammars, and relate these to the evolving socio-cultural contexts of the languages.

Essentially I have described three general models of causality which are shared between the two languages, all of which are grounded in the concept of unfolding time. The first is the *inceptive* model, in which a phenomenon—process, entity or property—‘emerges’ from the semantic context realised by another phenomenon, ‘becoming’, or ‘manifesting.’ This model is realised in both languages,

1) at clause rank in inceptive relational processes, in which a property or entity ‘becomes manifest’, and

2) at clause complex rank, in a hypotactic relation between a finite  $\alpha$  and imperfective non-finite  $\beta$  process, the finite  $\alpha$  process emerging from the semantic context realised by the non-finite  $\beta$  process.

The second is the concept of *intention*. This is realised

1) at clause complex rank as an interdependency relation between i) a verbal or mental process and a projected proposal, ii) an intentional action and its intended consequence, and iii) an observed event and its expected consequence, and

2) at group/phrase rank in purposive circumstances.

The third concept is *agency*. This is a clause rank system in which a participant (Agent) is represented as engendering a process which affects another participant (Medium); it is a relation between participants mediated by an effective process.

Each of these semantic domains and the general structure of their grammatical realisations is shared between Pitjantjatjara and English (and are thus directly translatable), and they are part of more general semantic and grammatical systems that are also shared between the two languages. But there are also more delicate semantic distinctions between the two languages which I will summarise first before turning to the more general similarities.

The first major difference is in the logico-semantic domain of *cause:reason* which is realised at the discourse semantic stratum as a cohesive conjunction in both languages, relating chunks of text (*palulanguru, therefore* etc), and grammatically at clause complex, clause and group/phrase rank in English but not in Pitjantjatjara. As I have suggested above, the grammatical construal of *cause:reason* in English takes the concept of *purpose*, an obligatory, potentially recursive relation between events in *irrealis* time, and reverses this potential to ‘reason’ about *realis* relations between events.

The most recent development in the English grammar of *cause:reason* is of course its realisation as relational processes and participants. This feature combines the meaning of expectancy relations between processes with that of agency between participants, by nominalising processes and realising them as clause rank participants. With the range of lexical items available to it, this

resource opens up a large potential for shades of meaning between absolutely determined and minimally probable causal relations between phenomena, and it simultaneously enables the clause rank textual resources of Theme and Information to be manipulated to construct written text. As I have pointed out, Pitjantjatjara does not realise processes metaphorically as clause rank participants, and does not construe processes as engendering each other.

These are more delicate distinctions between Pitjantjatjara and English in the domain of causality, and as I have suggested, their greatest divergence (particularly ideational metaphor) is a result of relatively recent developments in the evolution of modern English, associated with the emergence of mercantilism and industrial capitalism as the dominant material bases of English speaking culture, together with the explosion of writing as a mode of communication since the invention of printing and the rise of institutional discourses such as science and history. The lexicogrammatical resources were initially borrowed from the institutional discourses of classical imperial cultures which modern English institutions modelled themselves on, and elaborated as colonisation, empiricism and capitalism expanded. Thus the most striking divergences between the two languages can be explained in historical/cultural terms, as concomitant with diverging material cultures. The next question concerns their similarities.

These similarities are along two axes. The first is at the level of more general semantic concepts and their grammatical realisations. The second is in structural realisations at higher ranks in the grammar, clause complex, clause and group/phrase. The words and morphemes are different but their functions in higher rank grammatical structures tend to be equivalent.

To start at clause rank:

1) The system of *transitivity* in both languages distinguishes most generally between process, participant and circumstance, realised as verbal group, nominal group and phrase (nominal group with a preposition in English and a suffix in Pitjantjatjara). Secondly both languages distinguish between process types as material, verbal, mental or relational, and in the latter as intensive, possessive or circumstantial along one axis, and identifying or attributive along the other.<sup>19</sup> Distinctions between participants in these process types are denoted in similar ways. For example, Receivers in verbal processes are realised by the locative morphemes *-anka*, *-la* in Pitjantjatjara and in English by the locative prepositions *to*, *with*, *at*. Beneficiaries are realised by the centrifugal morphemes *for* in English and *-ku* in Pitjantjatjara. There is a wealth of similar correspondences in transitivity but unfortunately not the space to go into them here.

2) *Ergative/transitive* as alternative models of experience at clause rank. In the ergative model, Pitjantjatjara distinguishes between Agent and Medium by means of suffixes, whereas English does so, either by constituent order in the clause, or the preposition *by* if the Agent is clause final.

At clause complex rank the languages correspond along the axes of logico-semantic relation and interdependency type. Both languages distinguish between mental or verbal projection and expansion:

1) *Projections* may be paratactic or hypotactic, and the relative frequency in discourse of co-selections is similar: paratactic verbal projections (of "wording") are most frequent, whereas hypotactic mental projections (of 'meaning') are most frequent in both languages.<sup>20</sup>

2) *Expansions*: whereas in Pitjantjatjara, elaborating and extending relations are *always* paratactic, in English they are *most frequently* paratactic. While enhancement is *always* hypotactic in Pitjantjatjara it is *most frequently* so in English. Nesbitt and Plum (1988) have suggested that English's potential for co-selections of expansion and interdependency type is also a historical development, expanding the meaning potential of the language under historical conditions, evolving from a similar system as that of Pitjantjatjara in which co-selections were not available.

3) *Non-finite  $\beta$  processes* in hypotactic clause complexes may be either perfective or imperfective in either language, denoting irrealis or realis  $\beta$  events respectively. In English  $\beta$  events in hypotactic relations may also be represented by finite processes, but as with the co-selections above, this may also be a relatively recent historical development.

Finally, with respect to semogenesis of causality and grammatical realisations, I have already pointed out that the three conceptual domains of causality, as inception/emergence, intention/expectation and agency are shared between the two languages, and that their grammatical realisations at clause complex, clause and group/phrase rank are similar. The relation of these concepts to spatio-temporal deixis is most apparent in their morphology in both languages:

1) The *locative morphemes* which denote the emergence relation in Pitjantjatjara -*anka*, -*la* (-*ra*) correspond to the function of *locative prepositions* in hypotactic non-finite clause complexes in English, *upon her leaving*, *with her leaving*, *by her leaving etc.*, in which time and means are distinguished, but not cause:reason, as in emergence in Pitjantjatjara.

2) The *purposive morphemes* -*ku*, -*kitja* which are related to the concept of 'movement towards' in Pitjantjatjara correspond to items functioning as *causal conjunctions and prepositions* in English, such as *for*, *from*, *of*, *therefore*, *thus etc.*, which as I have pointed out are derived from spatio-

temporal deictics, indicating either 'movement towards' (purpose) or 'movement away from' (reason).

That these concepts may be realised as either clause complexes or as circumstances with similar frequencies in either language (clause complexes are more frequent than circumstantial realisations), and using the same range of spatio-temporal morphemes, is a further striking correspondence.

The similarities between these two languages in the semantic domain of causality and its grammatical realisations are overwhelming. The more general the meaning, and the higher the grammatical rank, the greater are the correspondences. Differences begin to emerge in more delicate semantic distinctions (*e.g.* means *vs* cause:reason), and more delicate choices in grammatical realisation (*e.g.* the choice of parataxis or hypotaxis in enhancing relations, and in finite or non-finite  $\beta$  processes within hypotaxis). In general English appears to offer more delicate semantic and grammatical distinctions than does Pitjantjatjara, and many if not all of these more delicate distinctions are attributable to relatively recent developments in English, associated with recent massive historical changes in its cultural contexts.

The core grammatical potentials of both languages in this semantic domain invoke Whorf's account of Hopi cosmology, based on his linguistic analyses, distinguishing between the "manifest" and "unmanifest," mediated by "the striving of purposeful desire, intelligent in character, towards manifestation." These concepts (of manifest *vs* unmanifest phenomena, and their process of manifesting as inceptive, intensive or agentive) are reflected i) in inceptive relational processes, ii) in the distinction between imperfective and perfective aspect of non-finite processes, iii) between past/present *vs* future/imperative in finite processes, iv) between hypotactic clause complex relations of emergence/reason *vs* hypotactic projection/purpose, v) between locative *vs* intensive circumstances, and vi) between middle and effective clauses, all of which are common to both Pitjantjatjara and English. The most general model of causality in both languages in other words is of 'becoming', potentially elaborated, firstly by intention and/or by agency, and thence by degrees of obligation or probability.

INTERDEPENDENCY	<b>inceptive</b>	<b>intensive/agentive</b>
	emergence: time & means, condition	hypotactic projection & purpose:
TRANSIVITY	middle clauses	desideration, intention & expectation
ASPECT	imperfective	effective clauses
MOOD & TENSE	past & present	perceptive
CIRCUMSTANCE	location: movement:	future & imperative
	away	location: movement: towards, destination, purpose

This representation of unfolding relations between phenomena, as either 'becoming' or 'brought into being' through intention or agency is part of the social semiotic theory realised in the grammar of both languages. It is an 'evolved' theory which is realised in the 'designed' theory of systemic functional linguistics. Central to the latter is the dialectic concept of **realisation** between systemic potential and manifest structure: a (manifest) semiotic event realises a network of choices from (unmanifest) systemic potentials, and simultaneously contributes to the evolving meaning potential of these systems. Accumulation of grammatical choices by speakers over deep time produces changes in the potential choices available to their descendants. This concept is embodied in Pitjantjatjara high theory, the *tjukurpa*, which construes phenomena in the manifest world of the senses as either permanent or continually recurring realisations of the material and semiotic acts of ancestral beings. The Pitjantjatjara theory construes the systems of potentials as having been established in the remote past by their own ancestors, sets of choices that are not theoretically open to fundamental change. It theorises the extreme conservatism and conservationism of semiotic and material resources that have always been vital to the survival of human societies.

On the other hand, the elaboration of the concept of cause:reason in English, and its coming to predominance in institutional discourses, privileges an alternative model of relations between phenomena: it "bores a tunnel" back through time, construing reality as recursive sequences of *realis* events, each represented as engendering the next, remote from the concepts of human intention or agency. This has become the **dominant model of realis causality** in modern English, insisting on obligatory historical sequences for the origins of manifest phenomena. Its function, as exemplified in section 2.3 above, is not simply to explain the present in terms of the past, but equally to persuade an audience. It is an essential resource in the continual reinvention of reality in a society emerging in conflict and the pursuit of technological and ideological superiority. It is a central node in a symbolic complex that privileges progress over continuity, and negatively valorises the past as less developed and more primitive.

On the other hand, the overwhelming similarities shown above between a modern Australian and a modern European language are in more general semantic and grammatical distinctions, and in higher ranks in the grammars, as well as in primary semogenic developments. These higher ranks and general semantic concepts are the domains of a language that change relatively slowly, while more delicate distinctions and the lower rank structures of word and morpheme may change relatively quickly. It is in the latter domains that languages differ most, so formalist linguistic accounts that focus on morphol-

ogy, vocabulary and syntactic structures are likely to emphasise the impression of difference.

It is possible that the complex of similarities, demonstrated in this paper for systems associated with this one semantic domain of 'causality,' is attributable to a common genetic potential for creating language, shared by all peoples. However, in the light of the evidence presented here, this may be a limited view. The data suggests not only a shared biological potential for language but also a shared cultural heritage over deep time; that since one function of human semiosis is to ensure the continuous reproduction of the information it carries, those domains of language that are least accessible to consciousness—higher grammatical ranks, and general semantic/grammatical categories—change extremely slowly, as long as the socio-cultural contexts in which they function retain fundamental continuities. This does not mean that Pitjantjatjara represents the primordial forms out of which modern English has evolved, rather that for most of their history both languages and their antecedents have evolved independently but slowly. Pitjantjatjara continued to do so while periods of massive cultural disruption have produced large but still relatively peripheral changes in the meaning potential of English. Considering its implications for understanding semiosis in general, the relationships between cultures, the potential of languages for construing alternative models of reality, and second language learning, this possibility is worth testing.

## NOTES

1. Pitjantjatjara/Yankunytjara Education Committee (1992).
2. Whorf (1950).
3. The description here is brief and simplified. See Halliday & Hasan (1976), Halliday (1985: 192ff) & Martin (1992) for comprehensive descriptions of these systems.
4. Note that non-finites in English may be either imperfective *going*, or perfective *to go*. The distinction is between a  $\beta$  event that occurs **before or during** the  $\alpha$  event (imperfective), or **after** the  $\alpha$  event (perfective). Pitjantjatjara makes the same distinction in non-finite processes. Non-finite processes thus have a much more restricted potential for temporal deixis (*i.e.* "pointing" in time) than finite processes which may take a number of different tenses in either language.
5. See Halliday (1985:302-7), and Halliday & Hasan (1976), for a comprehensive description of these resources.
6. For discussions of the historical evolution of these resources, see Halliday (1988, 1990a, 1990b), Halliday & Martin (1993).
7. Halliday (1985: 319-44).
8. 'Congruent' means a solidary relation between the semantic concept (*e.g.* process, participant) and its grammatical realisation (*e.g.* verbal group, nominal group).
9. Again, nominalised cause may be re-verbalised, *e.g.* 'happening x **results from** happening a.' See Halliday (1985: 379ff), for more on such resources for expressing cause.

10. See Martin (1992), Fries (1983) & Rose *et al* (1992) for more comprehensive descriptions of the construction of arguments in written discourses.
11. Department of Aboriginal Affairs.
12. Halliday (1985: 202-51).
13. See Halliday (1985:189-90).
14. With the exception of the 'serial verb form' (*i.e.* imperfective non-finites), formalist descriptions of Australian languages tend to categorise non-finite processes as nominalisations (*e.g.* Goddard 1982). This tendency stems from the privileging of morphology, rather than systematic reactances at higher ranks, as criteria for such descriptions.
15. *la* is added directly to the verb stem, which may also function as a reduced nominal (*e.g.* as an adjective—process as quality).
16. *-kitja* is a phonological reduction of the destination suffix *-ku* plus the nominal suffix *-tja*.
17. See "Uluru: an Aboriginal history of Ayers Rock" (Layton, 1986), also Rose (1991b) for an analysis of Pitjantjatjara visual symbols along these lines.
18. See Halliday (1985:177-84), and Matthiessen (1991). Note also that, in English, realis secondary tenses are realised by relational processes—'being' & 'having' (*i.e.* existent in time), while irrealis secondary tenses are realised by 'going to' (*i.e.* purposive movement).
19. See Halliday (1985: 101-157) for these systems in English, Martin (1983) for Tagalog, McGregor (1990) for Gooniyandi, and Rose (in prep) for Pitjantjatjara.
20. Halliday and James (1993)

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